

CLAIMS

What is claimed is:

1 1. A system for detection of error conditions when passing a cell stream at a
2 particular transmission rate from a first location to a second location over multiple
3 links, the system comprising:

4 a first unit at the first location coupled to one end of each of a plurality of
5 low capacity data links for receiving the cell stream and inverse multiplexing the
6 cell stream into frames that are transmitted over at least two trained data links
7 selected from the plurality of low capacity data links that are set to active status;
8 and

9 a second unit at the second location coupled to the other end of each of
10 the plurality of low capacity data links for receiving the frames from each of the
11 active trained data links and multiplexing the frame to produce the cell stream,
12 wherein the first unit inserts at least one detection cell into each frame prior to
13 transmission and the second unit analyzes the received detection cell to
14 determine if an error condition exists.

1 2. The system of claim 1 further comprising at least one data link selected
2 from the plurality of low capacity data links that is trained and set to idle
3 status, wherein the first unit and the second unit switch to use the trained
4 idle data link to replace any one of the active trained data links that has
5 failed and wherein the status of the idle data link is changed to active,
6 thereby avoiding system down time due to line failure.

1 3. The system of claim 1, wherein the trained data links operate at an
2 optimal rate

1 4. A method for enhancing error detection in a data stream transmitted from
2 a first unit to a second unit, the method comprising:

3 establishing a desired cell size for a detection cell and a frequency of

- 4 insertion into the data stream;
- 5 determining a known signal that will be part of the detection cell;
- 6 inserting the detection cell with the known signal into the data stream
- 7 being transmitted from the first unit to the second unit; and
- 8 analyzing the received detection cell at the second unit to determine if an
- 9 error condition exists.